

**Claims**

1. A rear plate of a plasma display panel, the rear plate comprising:

5 a glass substrate;

electrodes formed in a shape of patterns on an upper surface of the glass substrate;

a dielectric layer formed on upper surfaces of the electrode and the upper surface of the glass substrate;

10 barrier ribs formed in a shape of a pattern through etching on an upper surface of the dielectric layer; and

phosphorous layers formed on side surfaces and bottom surfaces of the barrier ribs and including red, green, and blue phosphorous layers, which emit red, green, and blue light according to an electric signal, respectively, wherein:

the electrodes are made from mixture of a conductive metal powder of 51 to 99.5 wt% and a first glass powder of 0.5 to 49 wt%, the conductive metal powder being at least one kind of metal powder selected from metal powder of An, Ag, Pt, Pd, Ni, and Cu, the conductive metal powder having an average particle diameter of 0.1 to 7  $\mu\text{m}$ , the first glass powder having an average particle diameter of 0.5 to 10  $\mu\text{m}$  and a specific resistance of  $1.0 \times 10^{-6}$  to  $5.0 \times 10^{-6} \Omega\text{cm}$ ;

the dielectric layer is made from mixture of a first filler and at least one glass powder selected from among a second glass powder and a third glass

powder, the second glass powder including PbO of 30 to 80 wt%, ZnO of 0 to 20 wt%, SiO<sub>2</sub> of 0 to 20 wt%, B<sub>2</sub>O<sub>3</sub> of 5 to 40 wt%, Al<sub>2</sub>O<sub>3</sub> of 0 to 12 wt%, Na<sub>2</sub>O+K<sub>2</sub>O+Li<sub>2</sub>O of 0 to 5 wt%, and BaO+CaO+MgO+SrO of 0 to 5 wt%, the third glass powder including Bi<sub>2</sub>O<sub>3</sub> of 36 to 84 wt%, B<sub>2</sub>O<sub>3</sub> of 5 to 28 wt%, PbO of 0 to 46 wt%, ZnO of 0 to 30 wt%, Al<sub>2</sub>O<sub>3</sub> of 0 to 13 wt%, SiO<sub>2</sub> of 0 to 10 wt%, Na<sub>2</sub>O+K<sub>2</sub>O+Li<sub>2</sub>O of 0 to 5 wt%, and BaO+CaO+MgO+SrO of 0 to 3 wt%, each of the second and third glass powders having an average particle diameter of 0.5 to 10  $\mu$ m, a softening temperature of 390 to 550 °C, a thermal expansive coefficient of  $63 \times 10^{-7}$  to  $83 \times 10^{-7}/^{\circ}\text{C}$ , a dielectric constant of 11 to 26, and an etching rate of 0.1 to 1.0  $\mu\text{m}/\text{min}$ , the first filler having an average particle diameter of 0.5 to 10  $\mu\text{m}$  and including at least one oxide selected from the group consisting of TiO<sub>2</sub>, ZrO<sub>2</sub>, ZnO, Al<sub>2</sub>O<sub>3</sub>, BN, SiO<sub>2</sub>, and MgO, which are white oxides, a ratio of volume of the first filler with respect to volume of the glass powder in the dielectric layer being 0.05 to 0.30, thereby the dielectric layer having a dielectric constant of 11 to 26, a reflectance of 50 to 80%, an etching rate of 0.1 to 1.0  $\mu\text{m}/\text{min}$ , and a porosity of 5, when the dielectric layer has been baked for 10 to 60 minutes at 450 to 600 °C;

the barrier ribs are made from mixture which includes at least one glass powder selected from the group consisting of a fourth, fifth, and sixth glass powders and at least one filler selected from the group consisting of a second filler and a third filler, the

fourth glass powder including ZnO of 0 to 48 wt%, SiO<sub>2</sub> of 0 to 21 wt%, B<sub>2</sub>O<sub>3</sub> of 25 to 56 wt%, Al<sub>2</sub>O<sub>3</sub> of 0 to 12 wt%, Na<sub>2</sub>O+K<sub>2</sub>O+Li<sub>2</sub>O of 0 to 38 wt%, and BaO+CaO+MgO+SrO of 0 to 15 wt%, the fifth glass powder including PbO of 25 to 65 wt%, ZnO of 0 to 35 wt%, SiO<sub>2</sub> of 0 to 26 wt%, B<sub>2</sub>O<sub>3</sub> of 5 to 30 wt%, Al<sub>2</sub>O<sub>3</sub>+SnO<sub>2</sub> of 0 to 13 wt%, Na<sub>2</sub>O+K<sub>2</sub>O+Li<sub>2</sub>O of 0 to 19 wt%, BaO of 0 to 26 wt%, and CaO+MgO+SrO of 0 to 13 wt%, the sixth glass powder including PbO of 35 to 55 wt%, B<sub>2</sub>O<sub>3</sub> of 18 to 25 wt%, ZnO of 0 to 35 wt%, BaO of 0 to 16 wt%, SiO<sub>2</sub>+Al<sub>2</sub>O<sub>3</sub>+SnO<sub>2</sub> of 0 to 9 wt%, CoO+CuO+MnO<sub>2</sub>+Fe<sub>2</sub>O<sub>3</sub> of 0 to 15 wt%, Na<sub>2</sub>O+K<sub>2</sub>O+Li<sub>2</sub>O of 0 to 19 wt%, and CaO+MgO+SrO of 0 to 13 wt%, each of the fourth, fifth, and sixth glass powders having an average particle diameter of 0.5 to 10 μm, a softening temperature of 390 to 630 °C, a thermal expansive coefficient of  $63 \times 10^{-7}$  to  $83 \times 10^{-7}/^{\circ}\text{C}$ , a dielectric constant of 5 to 20, and an etching rate of 2.0 to 50.0 μm/min, the second filler including at least two oxides selected from the group consisting of NiO, Fe<sub>2</sub>O<sub>3</sub>, CrO, MnO<sub>2</sub>, CuO, Al<sub>2</sub>O<sub>3</sub>, and SiO<sub>2</sub>, which have dark colors, the third filler including at least one oxide selected from the group consisting of TiO<sub>2</sub>, ZrO<sub>2</sub>, ZnO, Al<sub>2</sub>O<sub>3</sub>, BN, SiO<sub>2</sub>, and MgO, which have white colors, each of the second and third fillers having an average particle diameter of 0.1 to 10 μm, a ratio of the volume of the filler with respect to the volume of the glass powder for the barrier ribs being 0.05 to 0.67, thereby the barrier ribs having a dielectric constant of 5 to 16 and an etching rate of 2 to 50 μm/min and

enabling the glass substrate having the barrier ribs to have a bending of at most 0.3 mm, when the barrier ribs have been baked for 10 to 60 minutes at 450 to 600 °C, the barrier ribs having a height difference of at most 1% when the barrier ribs has been baked at 510°C for one hour after being etched by acid-based etching solution, the barrier ribs having a destruction ratio of 50% when an iron rod, which weighs 500g and has an end portion shaped like a sphere having a radius of 3 mm, is dropped one hundred times vertically onto uppermost surfaces of the barrier ribs from 5 mm above the uppermost surfaces, each of the barrier ribs having at least one layer; and

the red phosphorous layer includes at least two kinds of oxides selected from the group consisting of oxides Y, Gd, B, and Eu, the green phosphorous layer includes at least one kind of oxide selected from the group consisting of oxides Zn, Si, Mn, Y, B, Tb, Ba, and Al, and the blue phosphorous layer comprises at least two kinds of oxides selected from the group consisting of oxides Ba, Mg, Al, Sr, Mn, and Eu, so that, in the phosphorous layers, color temperatures are maintained between 8,000K and 13,000K.